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EXAMINER	
SHARIFI-TAFRESHI, KOOSHA	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,182	ROSSLER ET AL.	
	Examiner	Art Unit	
	Koosha Sharifi	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 17-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 17-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/29/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 26:

Claims 1 and 26 recites the limitation "..*the* respective positions…". There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 17:

Claim 17 recites the limitation "…and/or *the* reference coordinates…". There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 18:

Claim 18 recites the limitation "…*the* at least one action or function…". There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 18:

Claim 18 recites the limitation "…characterized in that the first threshold value area defines at least two different threshold values which are used for weighting when the at least one action or function of the VR graphics system is triggered."

The Examiner finds this limitation confusing. It is unclear how the threshold values are used for weighting? What is a weighting of a threshold value?

Appropriate correction required.

Regarding claim 19:

Claim 19 recites the following: "area is formed by a symmetrical three-dimensional body, in particular a sphere, an ellipsoid, a cube, a cuboid *or the like.*"

It is unclear what the Applicant considers "…or the like", hence the Examiner can interpret any 3-dimensinal shape as to correspond to Applicant "or the like".

Regarding claims 2, 17-25 and 30:

Claims 2, 17-25 and 30 depend on claim 1 and inherit the same deficiencies as discussed above.

Regarding claims 27-29 and 31:

Claims 27-29 and 31 depend on claim 26 and inherit the same deficiencies as discussed above.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 17, 21, 22, 26-28, 30 and 31 are rejected under 35 U.S.C. 102 as being anticipated by **Applicant's Admitted Prior Art [AAPA]** as shown in Fig.1 (Prior Art).

Regarding claim 1:

AAPA:

A method for controlling a virtual reality (VR) graphics system **[AAPA: Fig.1 (Prior Art)]** using interactions **[AAPA: Fig.1 (Prior Art)]; Examiner: Interactions are done for e.g. via 125, for e.g. moving 125 can be interpreted or considered as an interaction with the virtual space/environment]**, the VR graphics system having a projection device **[AAPA: Fig.1 (Prior Art): 110, 100]** for visualizing virtual three-dimensional scenes **[AAPA: Fig.1 (Prior Art); Examiner: Scenes 115 are shown on 100]** and the interactions with the VR graphics system taking place using at least one interaction unit **[AAPA: Fig.1 (Prior Art): Interaction unit 125]**, which is used to detect the respective position and/or orientation of the interaction unit on a physical spatial trajectory **[AAPA: Fig.1 (Prior Art); Examiner: Inherent from 125, specifically position detection system 145 provides for the detection of the position of 125]** and to generate corresponding position data **[AAPA: Fig.1 (Prior Art); Examiner: Inherent from 125, specifically 145 generates position data]** and to transmit these position data **[AAPA:**

Fig.1 (Prior Art); Examiner: Transmission done via 170] to a position detection device **[AAPA: Fig.1 (Prior Art): Digital computer 150]** of the VR graphics system, characterized in that an initial spatial point on the physical spatial trajectory of the interaction unit is determined **[AAPA: Fig.1 (Prior Art); Examiner: Inherent from interaction unit 125 which comprises a position detection system 145 which necessarily determines the position/orientation of the interaction unit (coordinates of device 125). The "initial spatial point" is determined for e.g. when a user initially (first time) picks up device 125 and uses it.]**, and in that at least one subsequent interaction is evaluated relative to the initial spatial point determined **[AAPA: Fig.1 (Prior Art); Examiner: Movement of input device 125 from one point (initial point) to another point in space necessarily causes a change or event in the virtual scene displayed to the user]**.

Regarding claim 2:

AAPA discloses:

The method as claimed in claim 1, characterized in that reference coordinates are determined using the initial spatial point **[AAPA: Fig.1 (Prior Art); Examiner: Note that interaction unit 125 necessarily detects the position of the device (point of location) via position detection system 145]**, the at least one subsequent interaction being evaluated relative to these reference coordinates **[AAPA: Fig.1 (Prior Art); Examiner: Movement of input device 125 from one point (initial point) to another**

point in space (spatial trajectory) necessarily causes an change in the virtual scene displayed to the user].

Regarding claim 17:

AAPA discloses:

The method as claimed in claim 1, characterized in that at least one threshold value or a first threshold value area is formed using the initial spatial point **[Examiner: Note that the system as shown in Fig.1 (Prior Art) is a digital system, hence the movement of device 125 detect via 145 occurs in a discreet fashion, moving from one point to another in space creates position data which causes move/action/event in the virtual scene hence a threshold (moving device in a minimum direction) is necessarily required to be exceeded in order to cause an move/action/event in the virtual environment]** and/or the reference coordinates **[AAPA: Fig.1 (Prior Art); Examiner: Note that interaction unit 125 necessarily detects the position of the device (point of location) via position detection system 145]**, at least one action or function of the VR graphics system being triggered when said threshold value or threshold value area is exceeded by the physical spatial trajectory **[AAPA: Fig.1; Examiner: Note that moving the interaction unit 125 necessarily causes/trigger an event in the virtual scene. Hence moving the interaction unit from one point in space (initial spatial point) to another point in space (exceeding threshold value) necessarily causes a change in the scene of the virtual environment]**.

Regarding claim 21:

AAPA discloses:

The method as claimed in claim 1, characterized in that the initial spatial point is determined using a first interaction **[AAPA: Fig1 (Prior Art); Examienr: Inherent from device 125 necessarily detects location/position of itself via position detection system 145 hence a first interaction can be considered the moving of 125 or the turning on of 125.; See also push button on 195 which receives a first interaction]**.

Regarding claim 22:

AAPA discloses:

The method as claimed in claim 21, characterized in that the first interaction takes place using the interaction unit, in particular using a control element which is arranged on the interaction unit **[AAPA: Fig.1 (Prior Art): Pushbutton 195]**, or using a user's acoustic, linguistic or gesticulatory interaction.

Regarding claim 26:

The limitation of claim 26 have been addressed in the discussion of claim 1 above.

Regarding claim 27:

The limitations of claim 27 have been addressed in the discussion of claim 2 above.

Regarding claim 28:

The limitations of claim 28 have been addressed in the discussion of claim 17 above.

Regarding claim 30:

AAPA discloses:

A virtual reality (VR) graphics system **[AAPA: Fig.1 (Prior Art); Examiner: Fig.1 (Prior Art) shows a VR system]** which operates according to the method of claim 1.

Regarding claim 31:

The limitations of claim 31 have been addressed in the discussion of claim 30 above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 19, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of **[HAEFNER U et al., EP 1276073 A2]**.

Regarding claim 19:

AAPA discloses:

The method as claimed in claim 17.

However, AAPA does not expressly discloses:

characterized in that the first threshold value area is *formed by a symmetrical three-dimensional body, in particular a sphere,an ellipsoid, a cube, a cuboid or the like*.

Haefner discloses:

characterized in that the first threshold value area is formed by a symmetrical three-dimensional body, in particular a sphere **[Haefner: Fig.7]**,an ellipsoid, a cube, a cuboid or the like.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the Kugemenue (sphere shaped menu) of Haefner in the

VR system of AAPA in order to allow the user to select functions /menus as expressly disclosed by Haefner **[Haefer: Fig.7].**

Regarding claim 23:

AAPA discloses:

The method as claimed in claim 1.

However, AAPA does not expressly disclose:

for use in a VR graphics system having at least one three-dimensional virtual menu system or function selection system, characterized in that the at least one subsequent interaction is used to control the menu system or the function selection system.

Hafner discloses:

for use in a VR graphics system having at least one three-dimensional virtual menu system **[Haefner: Fig.7]** or function selection system, characterized in that the at least one subsequent interaction **[Haefner: Fig.2: 4; Examiner: Interaction is done via 4 in Haefner]** is used to control the menu system **[Haefner: Fig.2: 4; Examiner: Interaction is done via 4 in Haefner]** or the function selection system.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the Kugemenue (virtual sphere shaped menu) of Haefner in the VR system of AAPA in order to allow the user to select functions /menus as expressly disclosed by Haefner **[Haefer: Fig.7].**

Regarding claim 25:

AAPA in view of Haefner discloses:

The method as discussed above, characterized in that an action or function which is to be effected by means of a rotational movement of the interaction unit **[Haefner: Fig.7; Examiner: User can rotate Kugel-menu (spherical-menu) as shown in Fig.7 via device shown in Fig.4]** is triggered only when at least one second interaction is carried out **[Haegner: Fig.7; Examiner: For e.g. a pushing button to select a menu iterm of the Kugel-menu corresponds to a second interaction]** in particular using the control element **[Haegner: Fig.7; Examiner: Conrol element such as buttons, 14 or 19 are located on device 4, see Fig.4 of Haefner]**.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of **[HAEFNER U et al., EP 1276073 A2]** and further in view of **[Zwern; Arthur L., US 6084556 A]**.

Regarding claim 24:

AAPA in view of Haefner discloses:

The method as claimed in claim 23, characterized in that, on account of the first interaction **[Haefner: Fig.2: 4; Examiner: Interaction is done via 4 in Haefner]**, the menu system **[Haefner: Fig.4]** or the function selection system is inserted into the virtual scene.

However, AAPA in view of Haefner does not expressly discloses:

with regard to the projection device, on the basis of the viewing direction and/or the head position of a user who is holding the interaction unit, in that the viewing direction and/or the head position is/are detected continuously or occasionally, and in that the position on the projection device, at which the menu system or the function selection system is/are inserted, is determined on the basis of the viewing direction detected and/or the head position detected.

Zwern discloses:

with regard to the projection device, on the basis of the viewing direction **[Zwern: Fig.3: 22]** and/or the head position of a user who is holding the interaction unit, in that the viewing direction and/or the head position is/are detected continuously or occasionally **[Zwern: Fig.3: 26, 28; Examiner: Detected via head-trackers 28]**, and in that the position on the projection device, at which the menu system or the function selection system is/are inserted **[Zwern: (Column 7, Lines 34-end of paragrapg)]**, is determined on the basis of the viewing direction detected and/or the head position detected **[Zwern: (Column 7, Lines 34-end of paragrapg); ; Examiner: Detected via head-trackers 28]**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the concept of inserting menues in the directions the user is gazing as disclosed by Zwern in the VR system of AAPA in view of Hafner in order to allow the user to see the menu instantaneously.

Allowable Subject Matter

8. Claims 18, 20 and 29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 18:

The prior does not teach or suggest:

18. (New) The method as claimed in claim 17, characterized in that the first threshold value area defines at least two different threshold values which are used for weighting when the at least one action or function of the VR graphics system is triggered.

Regarding claim 20:

The prior does not teach or suggest:

20. (New) The method as claimed in claim 1, characterized in that the initial spatial point and/or the reference coordinates is/are used to form at least one second threshold value area whose value is essentially greater than the value of the first threshold value area, shifting of the zero point of the reference coordinates in the

direction of the spatial trajectory being triggered when said second threshold value area is exceeded by the physical spatial trajectory.

Regarding claim 29:

The prior does not teach or suggest:

(New) The user interface as claimed in claim 26, characterized by means for calculating at least one second threshold value area on the basis of the reference coordinates, the value of said second threshold value area essentially greater than the value of the first threshold value area, and means for shifting the zero point of the reference coordinates in the direction of the spatial trajectory when the second threshold value area is exceeded by the physical spatial trajectory.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

[Horton; Mike A. et al., US 5615132 A] discloses: A method and apparatus for determining position and orientation of a moveable object using accelerometers.

[Kuwayama; Yukiko et al., US 5841887 A] discloses: An input device to interact with a scene. See Fig.1 and 2 (52).

[Latypov; Nurakhmed Nurislamovich, US 5846134 A] discloses: A method and apparatus for immersion of a user into virtual reality.

[Nagahara; Junichi et al., US 5898435 A] discloses: A spherical menu. See Fig. 26.

*[Zhai; Shumin et al., US 5923318 A] discloses: A finger manipulatable 6 degree-of-freedom input device.

*[Abe, Yuichi et al., US 20020012013 A1] discloses: A 3-dimensional model-processing apparatus, 3-dimensional model-processing method and program-providing medium.

[Elber, Gershon et al., US 20020033845 A1] discloses: Object positioning and display in virtual environments. Including menus see Fig.18.

[Satoh, Kiyohide et al., US 20030080979 A1] discloses: A sensor coordinate system. See Fig.2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Koosha Sharifi whose telephone number is (571) 270-5897. The examiner can normally be reached on Mon - Fri / 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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